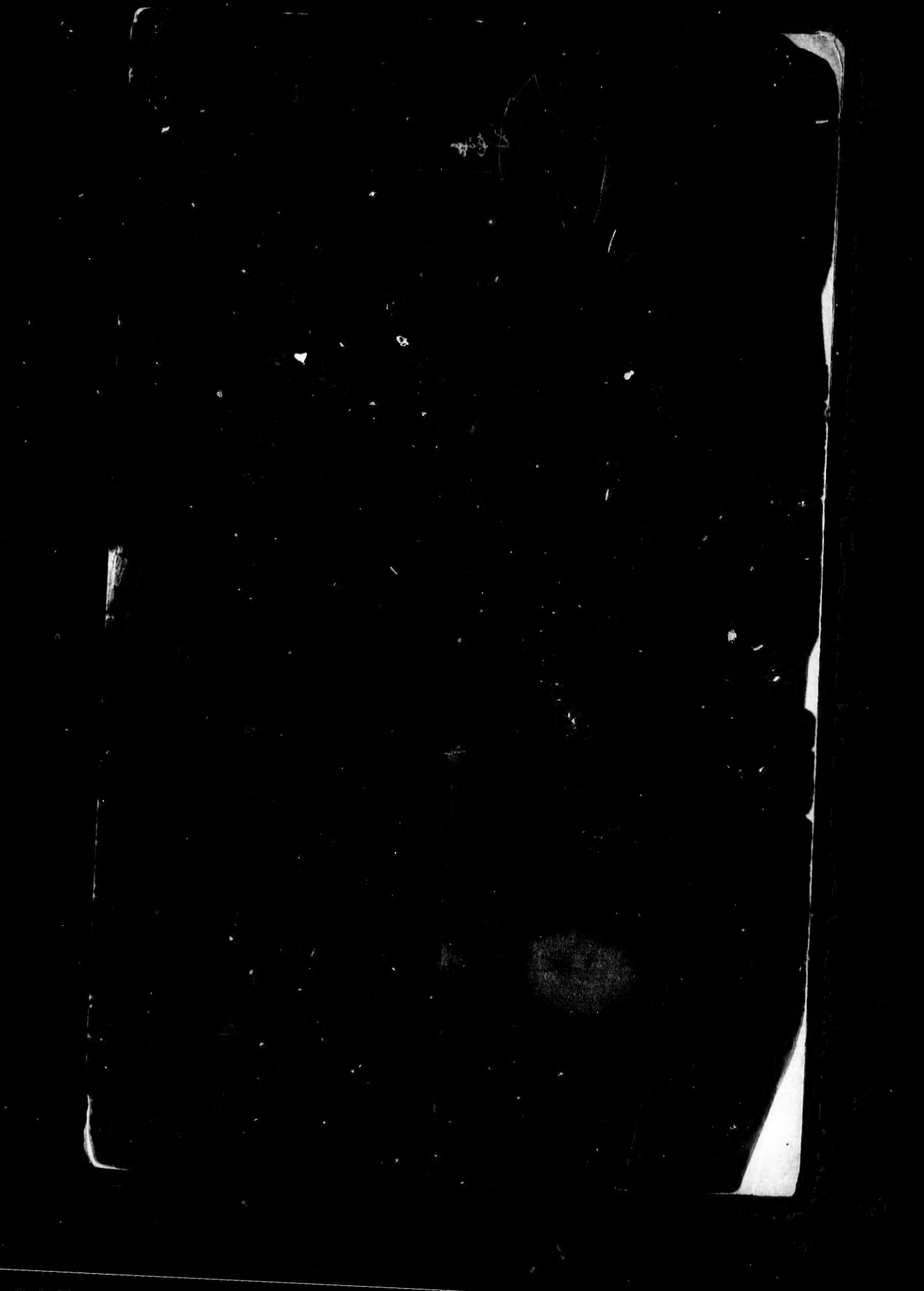

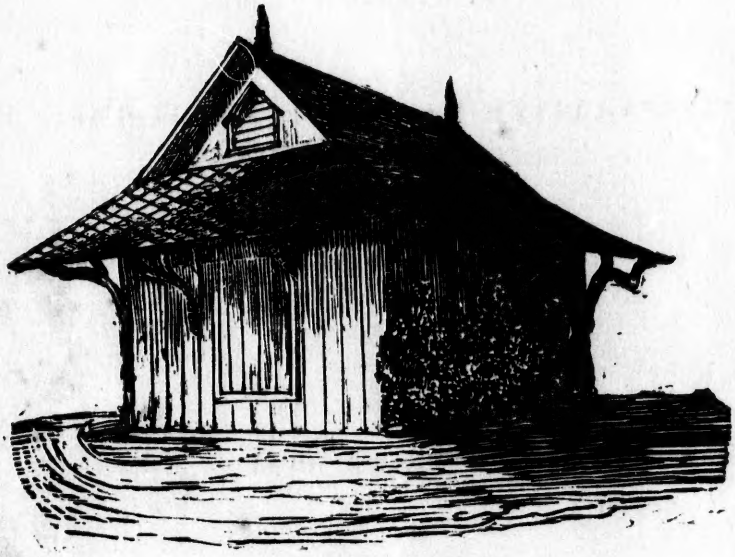

REPRESENTATION OF AN ICE HOUSE ABOVE GROUND.

PRACTICAL HINTS

ON THE

CONSTRUCTION OF ICE HOUSES,

WITH REMARKS ON THE

COMPARATIVE VALUE OF ICE FORMED IN DIFFERENT CLIMATES.

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PREFACE.

From the circumstance of the writer having been very successful in building general Ice Dépôts, for the trade of this city, he is frequently applied to for information on the subject, and as a means of furnishing it to his friends in a more satisfactory manner, he is induced to print this small pamphlet.

PRACTICAL HINTS

ON THE

CONSTRUCTION OF ICE HOUSES,

&c. &c.

Not many years ago, Ice was in many parts of the world looked upon as a rarity, and one, too, attainable only at certain periods of the year. Now, however, it takes its place among the *necessaries* of civilized life, and is to be met with at all seasons, in every land where comfort and luxury are known. By the persevering enterprise of our Atlantic neighbours, the "Wenham Lake" and "Fresh Pond Ice" are as extensively known, and as highly prized, as "Barclay & Perkins XX," or the Sparkling Wines of Champagne.

The matter more immediately in hand just now, is the mode of Preserving Ice, or in other words the way of making *Ice Houses*. In many countries the Hot House and the Ice House are parts of the wealthy man's establishment only; but in America the Ice House is deemed a necessary appendage to every substantial Farmer's dwelling. It is not for the sake of "Sherry Cobblers," "Ice Creams," and "Cool Liquors," that it has its great value in his eyes, but as a means of preserving, in the finest condition, during the hot months, his Viands, his Butter, his Cream, his more delicate Fruits, and in short his whole perishable stock of provisions.

The common mode of making Ice Houses in Canada, is to dig a deep pit, line it with boards, floor and roof it over: drains are commonly attached to carry off the water, and

the thing is deemed perfect. In general these pits are found empty about the end of July, just at the time when, as every body knows, Ice is most needed. The surface water gets into them and causes rapid melting, and the drain, from its generally imperfect construction, admits air, which hastens the work of destruction.

To have a good *underground* Ice House, select a *sandy* or *gravelly* soil, on rising ground—dig a pit twelve feet square and as many deep; line it with cedar joists and boards; make a common floor and trap door, and roof it over; make a wooden flue four inches square to lead from the attic through the top of the roof, or make two small lattice windows in each end of the gables to carry off the hot air which accumulates in this part of the building; cover the *Ice* with saw-dust three inches deep, and the labor is done. Such a building will contain more than sufficient Ice for the use of any family, and will never fail.

But it often happens that our residence is upon strong loamy or clayey soil, based upon clay or slate, or at least rocky in its substratum. Such a soil is retentive of moisture. And even admitting that it be well drained, the fact of *moist air* being a much better *conductor* than *dry air*, the Ice Pit just described, will not preserve its Ice half through the summer. The clay or rock is always damp, and the Ice being surrounded with a *good conductor*, melts rapidly in spite of all precautions.*

Something more than the common Ice House is needed in such soils. How shall we build them? is the question now so frequently put. We answer, on the *Chinese plan*—above ground—now generally adopted throughout America. In the

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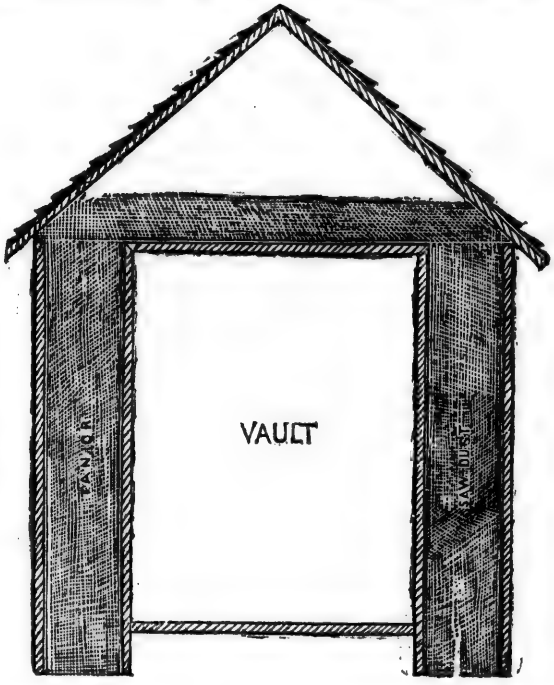
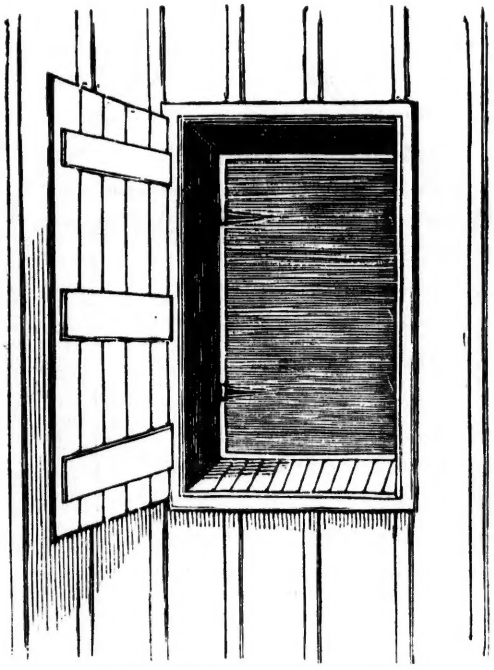
* About forty miles below Montreal there is a small Island opposite Berthier composed entirely of sand, which is so situated that when the Ice on the river *shoves* in the Spring, immense masses of fine Ice are carried some fifty or sixty feet under the sand, to the depth of several feet. When the water falls, this Ice is left imbedded high and dry, and having perfect drainage, and being protected from the air, is preserved during the whole of Summer. The *habitans* of the Village may be seen, day by day, paddling over in their canoes for supplies of chrystalised water from this *natural and perfect Ice Depot.*

first place, the frame should be made of two ranges of upright-posts, six inches by two or three, (the corner ones being somewhat stronger,) placed two-and-a-quarter feet apart at the bottom, and two feet at the top. These posts should be morticed into the top frame and sill—the sill to be sunk about six inches. These posts should be placed opposite each other and faced with rough boards, outside and in, which need not be tongued and grooved. The space be-



tween these boardings or partitions should be filled with dry saw-dust or tan-bark, well packed down. The bottom of the Ice House must be raised one foot above the level with sand or gravel, upon which, put a flooring of cull boards, leaving about an inch space between them. Upon this floor the Ice is to be laid. Six inches below the top of the wall, joists must be laid to lay the flooring, which should be tight, and covered with saw-dust six inches deep.

The Ice is thus surrounded by a wall of non-conducting substance, and is hermetically sealed. The roof of the building should have a high pitch, and the vacant attic should be ventilated by means of a lattice window at each gable to prevent the accumulation of warm air beneath the roof. Double doors must be provided in the side of the vault, which should fit well, and be opened as seldom as possible.



DOUBLE DOOR OF THE ICE HOUSE.

A building thus made, having a vault twelve feet in the clear every way, will hold Ice sufficient for the use of a family for the Summer.

WALL OF THE ICE HOUSE.

In countries where Ice is expensive, and has to be obtained from abroad, few will find it necessary to lay in so large a supply as the structure above described is calculated to hold. Now, it is by no means necessary that the building should be filled to insure its keeping. A few hundred pounds weight, put on the floor, will keep a *very long time.*

In Canada, where wood is cheap, and saw-dust easily obtained, a house such as above named may be put up in a rough way for thirty or forty dollars.

The "American Refrigerator," now in such general use, consists of two wooden chests (one four inches smaller every way than the other,) with the space filled in with any non-conducting substance. A lump of Ice is put into a shallow tub or trough, with a little gravel or sand at the bottom; a small leaden waste-pipe is attached to the trough, having a slight curve, to retain water enough to prevent the passage of air, and yet carry off the water as the Ice melts. A small lump of Ice put into one of these, will keep for a week.

Refrigerators are sometimes made of mahogany and covered with zinc, and in such a style as to be an ornament to the dining room.

A word or two on the comparative value of Ice produced in different latitudes. Many seem to think that Ice is the same all over the world. No matter whether the thermometer stands at 25 below zero or at 32—the point at which water assumes the solid form—both are alike, say they, in the amount of cold they contain. A cubic foot of the one, they allege, is as dense as a cubic foot of the other. Such, however, is far from being a fact; for scientific men have satisfactorily shewn, that the colder the climate in which it is formed, the more compact are its chrystals, and the longer it will keep. This being the case, it would appear important that Ice Houses be filled during cold and clear weather; and in purchasing a foreign article, either for storing or immediate domestic use, a preference should be given to that which is brought from the coldest latitudes.

The climate of Canada is particularly favourable to the formation of Ice. The magnificent River St. Lawrence, (whose transparent water is the wonder and admiration of every traveller,) passes through a vast northern territory, where, for three months during the Winter, the thermometer ranges from 5 to 25 below zero. This vast stream is now one mass of the most brilliant Ice to be met with in the world. Its average thickness is twenty-five inches, and always perfectly transparent; while that formed along the American seaboard rarely reaches half this, and cannot, as has been well proved, be kept nearly so long.

Permit us then to recommend the lovers of this modern and delightful luxury, to purchase the *St. Lawrence Ice*, which is formed from the *purest* water in the world, and which contains a degree of cold far exceeding that produced by either the "Wenham Lake" or "Fresh Pond."

The above hints on the construction of Ice Houses, &c., are compiled by an old and experienced hand, who has, for the last five years, had proof of the soundness of the statements now advanced.

He is mainly indebted for his information, to an excellent article on Chinese Ice Houses, which appeared some six years ago in *Chambers' Edinburgh Journal*. He has also enjoyed the advantage of some suggestions from that enterprising Ice Merchant, N. Wyeth, of Cambridge, near Boston.

February 10th, 1849.